

HTIRC-02-021

April 30, 2004



To: Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572  
28 Davis Avenue  
Poughkeepsie, N.Y. 12603

Subject: | Serial No. 10/786,806 02/25/04 |  
Kunliang Zhang et al.  
CPP GMR AND MAGNETOSTRICTION  
IMPROVEMENT BY LAMINATING Co90Fe10  
FREE LAYER WITH THIN Fe50Co50 LAYERS  
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#### INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation  
In An Application.

The following Patents and/or Publications are submitted to  
comply with the duty of disclosure under CFR 1.97-1.99 and  
37 CFR 1.56.

#### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being  
deposited with the United States Postal Service as first class  
mail in an envelope addressed to: Commissioner for Patents,  
P.O. Box 1450, Alexandria, VA 22313-1450, on May 4, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date

Stephen B. Ackerman 5/4/04

U.S. Patent 5,627,704 to Lederman et al., "Thin Film Giant Magnetoresistive CPP Transducer with Flux Guide Yoke Structure," discloses a CPP GMR stack structure formed within a gap located in one of two pole layers of a magnetic yoke structure which also has a transducing gap formed in an ABS plane.

U.S. Patent 5,668,688 to Dykes et al., "Current Perpendicular-to-the-Plane Spin Valve Type Magnetoresistive Transducer," discloses a spin valve CPP configuration in which the active layers form a stack of uniform width disposed between upper and lower shield and conductor layers.

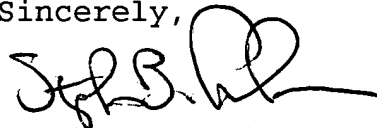
U.S. Patent 6,473,279 to Smith et al., "In-Stack Single-Domain Stabilization of Free Layers for CIP and CPP Spin-Valve or Tunnel-Valve Read Heads," teaches a CPP-GMR sensor whose ferromagnetic free layer is maintained in a single domain state by a layer configuration in which the free layer is separated from a pinning layer (below the free layer) by a non-magnetic spacer layer and an additional ferromagnetic layer is formed above the free layer and separated from it by an additional non-magnetic spacer layer formed of Ru.

U.S. Patent 6,226,197 to Nishimura, "Magnetic Thin Film Memory, Method of Writing Information in It, and Me," teaches a magnetic thin film memory using a variety of ferromagnetic layered materials.

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U.S. Patent 6,344,954 to Redon et al., "Magneto-Resistive Tunnel Junction Head with Specific Flux Guide Structure," teaches a MR tunnel junction whose ferromagnetic free layer and pinned layers are made of various layers of spin polarizing materials.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen B. Ackerman". The signature is fluid and cursive, with a large loop at the end.

Stephen B. Ackerman,  
Reg. No. 37761

01 INFORMATION DISCLOSURE CITATION  
IN AN APPLICATION  
MAY 06 2004  
(Use several sheets if necessary)

Docket Number (Optional)

HTIRC-02-021

Application Number

10/786,806

Applicant

Kunliang Zhang et al.

Filing Date

02/25/04

Group Art Unit

## U. S. PATENT DOCUMENTS

| DOCUMENT NUMBER | DATE     | NAME            | CLASS | SUBCLASS | PLND DATE<br>IF APPROPRIATE |
|-----------------|----------|-----------------|-------|----------|-----------------------------|
| 5627704         | 5/6/97   | Lederman et al. | 360   | 113      | 2/12/96                     |
| 5668688         | 9/16/97  | Dykes et al.    | 360   | 113      | 5/24/96                     |
| 6473279         | 10/29/02 | Smith et al.    | 360   | 324.12   | 1/4/01                      |
| 6344954         | 2/5/02   | Redon et al.    | 360   | 324.2    | 3/2/00                      |
| 6226197         | 5/1/01   | Nishimura       | 365   | 171      | 10/22/99                    |
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## FOREIGN PATENT DOCUMENTS

| DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | Translation<br>YES NO |
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## OTHER DOCUMENTS (Including Author, Title, Date, Portmox Pages, Etc.)

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EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.